

72. The computer-readable medium of claim 71 wherein the catalog is stored on the same site as the objects.

73. The computer-readable medium of claim 71 wherein the catalog is assembled on a second site which is not the site where the objects are stored.

74. The computer-readable medium of claim 71 wherein object references remain in the catalog although an object relating to an object reference no longer exists.

75. The computer-readable medium of claim 71 wherein the catalog comprises object references to objects stored on a plurality of sites, these object references being aggregated and stored on a central site.

A4 76. The computer-readable medium of claim 71 wherein the agent program creates meta data only for selected objects on the source site, the selected objects being selected by user input.

77. The computer-readable medium of claim 71 wherein the meta data further comprises a command operable to instruct the source site.

II. REMARKS

Claims 1 – 77 are now pending in this application. The Office Action mailed on September 17, 2002 ("Office Action"), rejected claim 1 under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,748,954 to Mauldin ("Mauldin") in view of U.S. Patent No. 5,897,639 to Greef et al. (Greef et al.). Additionally, the Office Action has objected to the abstract of the disclosure because it exceeds 150 words in length, as well as objecting to the title of the application as non-descriptive. This amendment amends the abstract and the title to overcome these objections, and amends claim 1 in addition to adding claims 2 – 77 in response to the Office Action.

The Office Action has also objected to the drawings under 37 CFR 1.83(a) as

failing to show every feature of the invention specified in the claims. In reference to the Examiner's objection to not showing, the features, "catalog", "cataloging site", "source sites", "program", "processed object meta data", and "aggregated transmitted meta data" have been taken in consideration. Applicants respectfully disagree and point out that the terms "processed meta data", "aggregated transmitted meta data", and "object references" are all well known in the art of references to data capable of storage on a computer system. These features are inherent to the drawings when features such as an index, database, or computer are shown. Furthermore, an applicant is allowed to be its own lexicographer, thus, applicant points out the following references to the specification.

On page 6, lines 30 - 33, applicants have used "index" and "catalog" interchangeably as is well know in the art. On page 7, lines 10 – 15 and lines 23 – 29, applicants have defined the term "object" to refer to anything stored on a site of interest. Further, applicants have defined a brochure file as a file created and stored within a website to provide data about the particular site. Thus, the term "object references", as used in the art, is a reference to an object or brochure. Still further, on page 7 line 16 – 22, applicants have defined the term "web host" as the physical location of one or more websites wherein each website is the source of objects. Thus, applicants may use the terms "source site" and "host site" interchangeably throughout the specification. Still further, on page 7, lines 20 – 22, applicants have used the term "central site" to indicate a computer that stores a catalog. Thus the terms "central site" and "cataloging site" can be used interchangeably. As can be appreciated by the foregoing remarks, applicants submit that these features are shown in the drawings, and, therefore, no amendment to

the drawings are necessary.

Further, the Office Action has reminded the applicants that, in considering the patentability of the claims under 35 U.S.C. 103(a), the subject matter of the various claims are considered commonly owned by the joint inventors and that if at any time during the invention process, the invention dates of each claim were not commonly owned, the Examiner must be informed in order to note the ramifications of patentability under other aspects of the United States Code. Applicants duly note this reminder and will advise the Examiner of any such circumstances.

Prior to discussing the reasons why applicants believe that the claims, as now pending, in this application are clearly allowable in view of the teachings of the cited and applied references, a brief description of the present invention followed by a brief discussion of the cited references is presented.

Summary of the Invention

The present invention is directed to a computer-based method of constructing a catalog or index of object references to objects stored within a network. The network includes a plurality of interconnected computers wherein at least one of the computers stores the catalog of object references. A computer that stores the catalog of object references is designated a central server site or cataloging site and other computers on the network are designated host sites or source sites wherein in the source sites store a plurality of objects to be referenced. The method further comprises running an agent program on each source site wherein the agent program processes the contents of objects stored on the source site and generates meta data, file references, or information that is representative of the object. The method further comprises

transmitting the generated meta data from each source site to at least one cataloging site. Further, the transmitted meta data is aggregated at each cataloging site to generate the catalog of object references. Thus information, *i.e.*, meta data, can be assembled about objects distributed across the network at a single computer *i.e.* cataloging site, without requiring a cataloging site to initiate contact and transfer of the meta data of each source site.

Additional embodiments of the invention include accessing, generating, and transmitting information about the file system of a source computer (claim 11), accessing, generating, and transmitting information about a file system structure of the source computer (claim 21), and accessing, generating, and transmitting information about objects that are not accessible to other sites on the network (claim 30). Additional embodiments of the invention are included but are not described in this summary.

Summary of the Principle Reference

Mauldin discloses a method of constructing a catalog of files stored on a network wherein a queue is established that contains at least one address representative of a file stored on one of the interconnected computers. This information (representative of the address alone) is ranked according to the popularity of the file associated with the address. Accordingly, the method of Mauldin further comprises downloading the entire file that happens to rank highest in the queue and stores the entire file on the catalog computer. Once the entire file has been downloaded, the method further comprises processing the downloaded file to generate certain information about the downloaded file for a catalog. Mauldin does not teach or suggest

processing or generating any information at the interconnected computer location prior to transmitting any information back to a cataloging computer.

Summary of the Secondary Reference

Greef et al. discloses a catalog database system wherein each catalog object contains at least one attribute and at least some of the catalog objects have at least one search path leading to at least one other object. Greef et al. discloses one method wherein information about catalog objects can be aggregated and presented. Greef et al., however, does not teach or suggest the generation on a separate computer system connected to a network of the data to be transmitted and aggregated.

The Claims Distinguished

As discussed in greater detail below, the claims of the present invention are clearly patentably distinguishable over the teachings of the above-cited references. As stated above, the Office Action has rejected claim 1 under 35 U.S.C. 103(a) as being unpatentable over Mauldin in view of Greef et al.

Regarding claim 1, the Office Action states that Mauldin teaches a method of constructing a catalog of object references to objects stored within a network, the network including a plurality of interconnected computers with at least one computer storing the catalog, each computer storing the catalog being designated as a cataloging site, and the other computers on the network storing a plurality of objects and being designated source sites. FIG. 3 and the abstract of Mauldin are referenced. The Office Action further states that Mauldin teaches running on each source site, an agent program which processes the contents of objects stored on the source site, thereby generating for each processed object meta data which describes the object. Column 8,

lines 43 – 56 of Mauldin are referenced. Further, the Office Action states that Mauldin discloses transmitting the generated meta data from each source site to at least one cataloging site. Column 5, lines 18 – 51 of Mauldin are referenced. The Office Action goes on further to state that although Mauldin teaches the invention substantially as cited above, it does not teach "aggregating the transmitted meta data at each cataloging site to generate the catalog of object references." The Office Action does, however, state that Greef et al. teaches this feature. Column 5, lines 20 – 62 of Greef et al. are purported to teach the creation of aggregate objects in building a catalog. The Office Action concludes that it would have been obvious to one of ordinary skill at the time of the invention to have combined Greef et al. with Mauldin because Greef et al. teaches the aggregation of catalog objects would enhance the processing speed, building the catalog objects, and displaying search results. Applicants respectfully disagree.

As recited in amended claim 1, the cited and applied references do not teach or even suggest running on each source site an agent program which processes the contents of objects stored on the source site. The portion of Mauldin cited by the Office Action (column 8, lines 43 – 56) teaches an indexing, retrievable system that uses a retrieval interface device such as a personal computer. A typical personal computer is running some type of browser software that allows the computer to interface with the indexing retrieval system. The indexing retrieval system, however, is not running on the personal computer. It is merely being accessed by the personal computer through the browser software. The information gathered and stored in the indexing retrieval system had been previously constructed at the search engine computer, *i.e.*, a cataloging site.

In direct contrast, the method according to the present invention comprises running an agent program on each *source site*, wherein the agent program processes the contents of the objects stored on the source site thereby generating for each processed object, information, *i.e.*, meta data at the host site prior to transmission. The cited references do not teach the concept of processing objects *at the source site* and then transmitting meta data about the objects at the source site *prior to aggregating* the transmitted data on a cataloging site.

Furthermore, the cited and applied references do not teach or suggest the recitations of dependant claims 2 – 8. For example, the cited and applied references do not teach the recitation of claim 4 wherein transmitting the assembled meta data comprises transmitting differential meta data indicating changes in current meta data relative to previous meta data. Additionally, the cited and applied references do not teach the recitations of claim 6 wherein the agent program creates meta data only for selected objects on the source site, the selected objects being selected using a computer generated algorithm. Furthermore, various embodiments in other independent claims are also not taught or suggested by the cited and applied references. As a result, applicants submit that claims 1 – 77 are clearly allowable in view of the teachings of the cited and applied references.

CONCLUSION

In view of the foregoing remarks, applicants submit that all of the claims in the present application, as now amended, are clearly patentably distinguishable over the teachings of Mauldin and Greef et al. Thus, applicants submit that this application is in condition for allowance. Reconsideration and reexamination of the application and

allowance of the claims and passing of the application to issue at an early date are solicited. If the Examiner has any remaining questions concerning this application, the Examiner is invited to contact the applicant's undersigned attorney at the number below.

Should further payment be required to cover such fees you are hereby authorized to charge such payment to Deposit Account No. 07-1897.

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Respectfully submitted,

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APPENDIX A

Marked Up Version Of The Claims Reflecting The Condition Of The Claims Prior To Entry Of The Amendment And The Changes Incorporated In The Amended

Abstract

A search engine utilizes a bottom-up approach to index the content of a network with agent programs running on each source computer instead of relying on a top-down approach as used by conventional search engines. [The network being indexed may be any network, including the global computer network or an intranet. Instead of using a central site including spidering software to recursively search all linked web pages and generate a search index of the Internet, independent distributed components or agent programs are located at each web site and report meta data about objects at the web site to the central server.] A central catalog of object references is compiled on the central site or sites from the meta data reported from each web site. One or more brochure files may also be created and stored on each web site to provide conceptual or non-key-word data about the site, such as target demographics and categorization information. This conceptual information is then utilized in constructing the central catalog so that more accurate search results may be generated for search queries applied to the catalog.

Claims

1. A method [of] for constructing a catalog of object references corresponding to objects stored within a network, the network including a plurality of interconnected computers with at least one computer storing the catalog, each computer storing the catalog being designated a cataloging site, and the other computers on the network storing a plurality of objects and being designated source sites, the method comprising:

running on each source site [a] an agent program which processes the contents of objects stored on the source site[, thereby generating for each processed object] and generates meta data for each processed object which describes the object;

transmitting the generated meta data from each source site to at least one cataloging site; and

aggregating the transmitted meta data at each cataloging site to generate the catalog of object references.